2. A compound having the structure:

A-(Xaa)-B

wherein (Xaa) is a peptidic structure selected from the group consisting of D-Leu-D-Val-D-Phe-D-Phe, D-Leu-D-Val-D-Phe-phenethylamide, D-Leu-D-Val-D-Tyr-D-Phe, D-Leu-D-Val-D-IodoTyr-D-Phe, D-Leu-D-Val-D-Phe-D-Tyr, D-Leu-D-Val-D-Phe-D-IodoTyr, D-Leu-D-Val-D-Phe-D-Ala, D-Ala-D-Val-D-Phe-D-Phe-D-Leu, D-Leu-D-Val-D-Tyr-D-Phe-D-Ala, D-Leu-D-Val-D-IodoTyr-D-Phe-D-Ala, D-Leu-D-Val-D-Phe-D-Tyr-D-Ala, D-Leu-D-Val-D-Phe-D-IodoTyr-D-Ala, D-Phe-D-Phe-D-Val-D-Leu, D-Ala-D-Phe-D-Phe-D-Val, D-Ala-D-Phe-D-Phe-D-Val-D-Leu, D-Ala-D-Phe-D-Phe-D-Leu-D-Leu, D-Leu-D-Phe-D-Phe-D-Val-D-Leu, D-Phe-D-Phe-D-Phe-D-Val-D-Leu, D-Phe-D-Phe-D-Phe-D-Leu-D-Val, D-Phe-D-Phe-D-Phe-D-Phe-D-Leu and D-Ala-D-Phe-D-Phe-D-Phe-D-Leu.

A is an amino-terminal modifying group selected from the group consisting of cholyl, lithocholyl, hyodeoxycholyl, chenodeoxycholyl and ursodeoxycholyl; and

B is a carboxy-terminal modifying group selected from the group consisting of an amide group, an alkyl amide group, an aryl amide group and a hydroxy group.

3. The compound of claim 3, wherein A is selected from the group consisting of lithocholyl, hyodeoxycholyl, chenodeoxycholyl and ursodeoxycholyl.

4. A compound having the structure: 3,5-Dihydroxy-2-Napthoyl- (D-leucine-D-valine-D-phenylalanine-D-phenylalanine-D-alanine)-NH_2.

5. A compound having the structure: 3,7-Dihydroxy-2-Napthoyl- (D-leucine-D-valine-D-phenylalanine-D-phenylalanine-D-alanine)-NH_2.

6. A compound having the structure: 4-Hydroxybenzoyl- (D-leucine-D-valine-D-phenylalanine-D-phenylalanine-D-alanine)-NH_2.

7. A compound having the structure: 4-Hydroxyphenylacetyl- (D-leucine-D-valine-D-phenylalanine-D-phenylalanine-D-alanine)-NH_2.

8. A compound having a structure selected from the group consisting of: Diphenylacetyl-D-leucine-D-valine-D-phenylalanine-D-phenylalanine-NH_2; Triiphenylacetyl-D-leucine-D-valine-D-phenylalanine-D-phenylalanine-NH_2;

Isobutanoyl-D-leucine-D-valine-D-phenylalanine-D-phenylalanine-D-phenylalanine-NH_2;

4-Methylvaleryl-D-leucine-D-valine-D-phenylalanine-D-phenylalanine-D-phenylalanine-NH_2;

3-Hydroxyphenylacetyl-D-leucine-D-valine-D-phenylalanine-D-phenylalanine-NH_2;

3,5-Dihydroxy-2-naphthoyl-D-leucine-D-valine-D-phenylalanine-D-phenylalanine-NH_2;

3,5-Dihydroxy-2-naphthoyl-D-leucine-D-valine-D-phenylalanine-D-phenylalanine-D-alanine-NH_2;

2-Hydroxyphenylacetyl-D-leucine-D-valine-D-phenylalanine-D-phenylalanine-NH_2;

3,4-Dihydroxycinnamoyl-D-leucine-D-valine-D-phenylalanine-D-phenylalanine-NH_2;

(±)-Mandelyl-D-leucine-D-valine-D-phenylalanine-D-phenylalanine-NH_2;

(±)-Mandelyl-(±)-Mandelyl-D-leucine-D-valine-D-phenylalanine-D-phenylalanine-D-alanine-NH_2;

Glycolyl-D-leucine-D-valine-D-phenylalanine-D-phenylalanine-D-alanine-NH_2;

Glycolyl-D-phenylalanine-D-phenylalanine-D-phenylalanine-D-valine-D-leucine-NH_2;

D-alanine-D-phenylalanine-D-phenylalanine-D-valine-D-leucine-NH_2;

D-leucine-D-valine-D-iodotyrosine-D-phenylalanine-D-alanine-NH_2;

D-alanine-D-phenylalanine-D-phenylalanine-D-leucine-D-leucine-NH_2;

D-leucine-D-phenylalanine-D-phenylalanine-D-valine-D-leucine-NH_2;

D-phenylalanine-D-phenylalanine-D-phenylalanine-D-valine-D-leucine-NH_2;

D-phenylalanine-D-phenylalanine-D-phenylalanine-D-leucine-D-valine-NH_2;

D-phenylalanine-D-phenylalanine-D-phenylalanine-D-phenylalanine-D-leucine-NH_2;

D-alanine-D-phenylalanine-D-phenylalanine-D-phenylalanine-D-leucine-NH_2;

D-alanine-D-homophenylalanine-D-homophenylalanine-D-valine-D-leucine-NH_2;

D-phenylalanine-D-phenylalanine-D-valine-D-leucine-NH_2;

D-leucine-D-phenylalanine-D-phenylalanine-D-phenylalanine-D-leucine-NH_2;

D-leucine-D-valine-D-phenylalanine-D-phenylalanine-D-leucine-NH_2;

D-leucine-D-valine-D-phenylalanine-D-phenylalanine-D-phenylalanine-NH_2;

D-leucine-D-valine-D-phenylalanine-D-phenylalanine-D-valine-NH_2;

Hyodeoxycholyl-D-leucine-D-valine-D-phenylalanine-D-phenylalanine-D-alanine-NH_2;

Chenodeoxycholyl-D-leucine-D-valine-D-phenylalanine-D-phenylalanine-D-alanine-NH_2;

Ursodeoxycholyl-D-leucine-D-valine-D-phenylalanine-D-phenylalanine-D-alanine-NH_2;

2,4-Dihydroxybenzoyl-D-leucine-D-valine-D-phenylalanine-D-phenylalanine-D-alanine-NH_2;

2-Hydroxycinnamoyl-D-leucine-D-valine-D-phenylalanine-D-phenylalanine-D-alanine-NH_2;

3-Hydroxycinnamoyl-D-leucine-D-valine-D-phenylalanine-D-phenylalanine-D-alanine-NH_2;

4-Hydroxycinnamoyl-D-leucine-D-valine-D-phenylalanine-D-phenylalanine-D-alanine-NH_2;

5-Hydantoinacetyl-D-leucine-D-valine-D-phenylalanine-D-phenylalanine-D-alanine-NH_2;

3,4-Dihydroxycinnamoyl-D-leucine-D-valine-D-phenylalanine-D-phenylalanine-D-alanine-NH_2;

3-Formylbenzoyl-D-leucine-D-valine-D-phenylalanine-D-phenylalanine-D-alanine-NH_2;

2-Formylphenoxyacetyl-D-leucine-D-valine-D-phenylalanine-D-phenylalanine-D-alanine-NH_2;

4-Hydroxy-3-methoxycinnamoyl-D-leucine-D-valine-D-phenylalanine-D-phenylalanine-D-alanine-NH_2;

3,5-Dihydroxy-2-naphthoyl-D-alanine-D-phenylalanine-D-phenylalanine-D-valine-D-leucine-NH_2;

3,4-Dihydroxycinnamoyl-D-alanine-D-phenylalanine-D-phenylalanine-D-valine-D-leucine-NH_2;

(±)-Mandelyl-D-alanine-D-phenylalanine-D-phenylalanine-D-valine-D-leucine-NH_2;

4-Hydroxycinnamoyl-D-alanine-D-phenylalanine-D-phenylalanine-D-valine-D-leucine-NH_2;

Glycolyl-D-alanine-D-phenylalanine-D-phenylalanine-D-valine-D-leucine-NH_2;

3,4-Dihydroxycinnamoyl-D-leucine-D-phenylalanine-D-phenylalanine-D-valine-D-leucine-NH_2;

Glycolyl-D-phenylalanine-D-phenylalanine-D-phenylalanine-D-valine-D-leucine-NH_2;

DL-3-(-4-Hydroxyphenyl)Lactyl-D-leucine-D-valine-D-phenylalanine-D-phenylalanine-D-alanine-NH_2;

D-3-Phenyllactyl-D-alanine-D-phenylalanine-D-phenylalanine-D-valine-D-leucine-NH_2;

L-3-Phenyllactyl-D-alanine-D-phenylalanine-D-phenylalanine-D-valine-D-leucine-NH_2;

3-(2-Hydroxyphenyl)propionyl-D-alanine-D-phenylalanine-D-phenylalanine-D-valine-D-leucine-NH_2;

4-(2-Hydroxyphenyl)propionyl-D-alanine-D-phenylalanine-D-phenylalanine-D-valine-D-leucine-NH_2;

D-3-Phenyllactyl-D-phenylalanine-D-phenylalanine-D-valine-D-leucine-NH_2;

3-(2-Hydroxyphenyl)propionyl-D-phenylalanine-D-phenylalanine-D-valine-D-leucine-NH_2;

3-(4-Hydroxyphenyl)propionyl-D-phenylalanine-D-phenylalanine-D-valine-D-leucine-NH_2;

Hydocinnamoyl-D-phenylalanine-D-phenylalanine-D-valine-D-leucine-NH_2;

4-Hydroxybenzoyl-D-alanine-D-phenylalanine-D-phenylalanine-D-valine-D-leucine-NH_2;

D-3-Phenyllactyl-D-phenylalanine-D-phenylalanine-D-phenylalanine-D-valine-D-leucine-NH_2;

Hydrocinnamoyl-D-phenylalanine-D-phenylalanine-D-phenylalanine-D-valine-D-leucine-NH_2;

4-Hydroxybenzoyl-D-leucine-D-phenylalanine-D-phenylalanine-D-phenylalanine-D-leucine-NH_2;

Acetyl-D-leucine-D-phenylalanine-D-phenylalanine-D-phenylalanine-D-leucine-NH_2;

3,7-Dihydroxy-2-naphthoyl-D-leucine-D-phenylalanine-D-phenylalanine-D-valine-D-leucine-NH_2;

4-Hydroxyphenylacetyl-D-leucine-D-phenylalanine-D-phenylalanine-D-valine-D-leucine-NH_2;

3,7-Dihydroxy-2-naphthoyl-D-phenylalanine-D-phenylalanine-D-phenylalanine-D-valine-D-leucine-NH_2;

4-Hydroxyphenylacetyl-D-phenylalanine-D-phenylalanine-D-phenylalanine-D-valine-D-leucine-NH_2;

3,7-Dihydroxy-2-naphthoyl-D-Pyridylalanine-D-phenylalanine-D-phenylalanine-D-valine-D-leucine-NH_2;

4-Hydroxybenzoyl-D-Pyridylalanine-D-phenylalanine-D-phenylalanine-D-valine-D-leucine-NH_2;

3-Pyridylacetyl-D-alanine-D-phenylalanine-D-phenylalanine-D-valine-D-leucine-NH_2;

Isonicotinoyl-D-alanine-D-phenylalanine-D-phenylalanine-D-valine-D-leucine-NH_2;

H-Glycyl-D-phenylalanine-D-phenylalanine-D-valine-D-leucine-NH_2;

H-Glycyl-D-alanine-D-phenylalanine-D-phenylalanine-D-valine-D-leucine-NH_2;

4-Pyridylacetyl-D-alanine-D-phenylalanine-D-phenylalanine-D-valine-D-leucine-NH_2;

4-Quinolinecarboxyl-D-alanine-D-phenylalanine-D-phenylalanine-D-valine-D-leucine-NH_2;

1-Isoquinolinecarboxyl-D-alanine-D-phenylalanine-D-phenylalanine-D-valine-D-leucine-NH_2;

3-Isoquinolinecarboxyl-D-alanine-D-phenylalanine-D-phenylalanine-D-valine-D-leucine-NH_2;

4-Hydroxybenzoyl-D-leucine-D-valine-D-phenylalanine-D-tyrosine-D-alanine-NH_2;

4-Hydroxybenzoyl-D-leucine-D-valine-D-tyrosine-D-phenylalanine-D-alanine-NH_2;

and

4-Hydroxybenzoyl-D-leucine-D-valine-D-tyrosine-D-tyrosine-D-alanine-NH_2.

9. A pharmaceutical composition comprising a therapeutically effective amount of the compound of claim 1-8 and a pharmaceutically acceptable carrier.

10. A method for inhibiting aggregation of natural β-amyloid peptides, comprising contacting the natural β-amyloid peptides with the compound of claim 1 such that aggregation of the natural β-amyloid peptides is inhibited.

11. A method for detecting the presence or absence of natural β-amyloid peptides in a biological sample, comprising:

contacting a biological sample with the compound of claim 1, wherein the compound is labeled with a detectable substance; and

detecting the compound bound to natural β-amyloid peptides to thereby detect the presence or absence of natural β-amyloid peptides in the biological sample.

12. The method of claim 11, wherein the β-amyloid modulator compound and the biological sample are contacted *in vitro*.

13. The method of claim 11, wherein the β-amyloid modulator compound is contacted with the biological sample by administering the β-amyloid modulator compound to a subject.

14. The method of claim 11, wherein the compound is labeled with radioactive technetium or radioactive iodine.

15. A method for treating a subject for a disorder associated with β-amyloidosis, comprising:

administering to the subject a therapeutically effective amount of the compound of claim 1 such that the subject is treated for a disorder associated with β-amyloidosis.

16. The method of claim 15, wherein the disorder is Alzheimer's disease.

We claim:

1. A compound having the structure:

A-(Xaa)-B

wherein (Xaa) is a peptidic structure selected from the group consisting of D-Leu-D-Val-D-Phe-D-Phe, D-Leu-D-Val-D-Phe-phenethylamide, D-Leu-D-Val-D-Tyr-D-Phe, D-Leu-D-Val-D-IodoTyr-D-Phe, D-Leu-D-Val-D-Phe-D-Tyr, D-Leu-D-Val-D-Phe-D-IodoTyr, D-Leu-D-Val-D-Phe-D-Ala, D-Leu-D-Val-D-Phe-D-Phe-D-Ala, D-Ala-D-Val-D-Phe-D-Phe-D-Leu, D-Leu-D-Val-D-Tyr-D-Phe-D-Ala, D-Leu-D-Val-D-IodoTyr-D-Phe-D-Ala, D-Leu-D-Val-D-Phe-D-Tyr-D-Ala, D-Leu-D-Val-D-Phe-D-IodoTyr-D-Ala, D-Phe-D-Phe-D-Val-D-Leu, D-Ala-D-Phe-D-Phe-D-Val, D-Ala-D-Phe-D-Phe-D-Val-D-Leu, D-Ala-D-Phe-D-Phe-D-Leu-D-Leu, D-Leu-D-Phe-D-Phe-D-Val-D-Leu, D-Phe-D-Phe-D-Phe-D-Val-D-Leu, D-Phe-D-Phe-D-Phe-D-Leu-D-Val, D-Phe-D-Phe-D-Phe-D-Phe-D-Leu and D-Ala-D-Phe-D-Phe-D-Phe-D-Leu.

A is an amino-terminal modifying group selected from the group consisting of phenylacetyl, diphenylacetyl, triphenylacetyl, butanoyl, isobutanoyl hexanoyl, propionyl, 3-hydroxybutanoyl, 4-hydroxybutanoyl, 3-hydroxypropionoyl, 2, 4-dihydroxybutyroyl, 1-Adamantanecarbonyl, 4-methylvaleryl, 2-hydroxyphenylacetyl, 3-hydroxyphenylacetyl, 4-hydroxyphenylacetyl, 3,5-dihydroxy-2-naphthoyl, 3,7-dihydroxy-2-napthoyl, 2-hydroxycinnamoyl, 3-hydroxycinnamoyl, 4-hydroxycinnamoyl, hydrocinnamoyl, 4-formylcinnamoyl, 3-hydroxy-4-methoxycinnamoyl, 4-hydroxy-3-methoxycinnamoyl, 2-carboxycinnamoyl, 3,4,-dihydroxyhydrocinnamoyl, 3,4-dihydroxycinnamoyl, *trans*-Cinnamoyl, (±)-mandelyl, (±)-mandelyl-(±)-mandelyl, glycolyl, 3-formylbenzoyl, 4-formylbenzoyl, 2-formylphenoxyacetyl, 8-formyl-1-napthoyl, 4-(hydroxymethyl)benzoyl, 3-hydroxybenzoyl, 4-hydroxybenzoyl, 5-hydantoinacetyl, L-hydroorotyl, 2,4-dihydroxybenzoyl, 3-benzoylpropanoyl, (±)-2,4-dihydroxy-3,3-dimethylbutanoyl, DL-3-(4-hydroxyphenyl)lactyl, 3-(2-hydroxyphenyl)propionyl, 4-(2-hydroxyphenyl)propionyl, D-3-phenyllactyl, 3-(4-hydroxyphenyl)propionyl, L-3-phenyllactyl, 3-pyridylacetyl, 4-pyridylacetyl, isonicotinoyl, 4-quinolinecarboxyl, 1-isoquinolinecarboxyl and 3-isoquinolinecarboxyl.

and B is a carboxy-terminal modifying group selected from the group consisting of an amide group, an alkyl amide group, an aryl amide group and a hydroxy group.